CHAPTER 74 EVALUATE EMERGENCY EVACUATION/DITCHING PROCEDURES

Section 1 Background

1. WPMS ACTIVITY CODE. 1311

3. OBJECTIVE. The objective of this task is to determine that an applicant for a FAR Part 125 operating certificate or a FAR Part 125 operator can safely evacuate passengers in the event of an emergency landing. Successful completion of this task results in an indication of satisfactory or unsatisfactory on FAA Form 8430-1.

5. GENERAL. The following definitions are pertinent to this task.

A. ***Operator vs. Applicant.*** For the purpose of this task, an applicant for a FAR Part 125 Certificate and an existing operator will be referred to as "the operator."

B. ***Emergency Evacuation Demonstration.*** An emergency evacuation demonstration is the evacuation of passengers and crew from a simulated aborted takeoff.

C. ***Ditching Demonstration.*** A ditching demonstration is the evacuation of passengers and crew into life rafts after a simulated forced water landing.

D. ***FAA Team Leader.*** This is the inspector who heads the FAA team evaluating the emergency evacuation or ditching demonstration. In the case of an existing operator, it is the principal operations inspector; for a FAR Part 125 certificate applicant, it is the certification project manager.

E. ***Demonstration Project Coordinator.*** This is the individual assigned by the company to organize and conduct the demonstration. This person also serves as official contact with the FAA for the purposes of the demonstration.

F. ***Seating Configuration.*** Seating configuration is the number of passengers seats authorized for use by the manufacturer type certificate or production data, supplemental type certificate, or other FAA-approved data. Adding or removing seats is a major alteration and requires appropriate FAA approval.

G. ***Participants.*** These are individuals supplied by the applicant who simulate passengers during emergency evacuation and ditching demonstrations.

7. TYPE CERTIFICATION DEMONSTRATIONS. An airplane manufacturer must conduct an emergency evacuation demonstration in accordance with FAR 25.803 to obtain type-certification. This demonstration is the responsibility of the applicable FAA Aircraft Certification Office (ACO) and tests:

- The basic airplane design and its ability to be evacuated safely.
- The airplane's emergency evacuation systems.
- The manufacturer's FAA approved emergency evacuation procedures.

9. REGULATORY REQUIREMENTS. FAR §§ 25.803 and 125.189 and FAR Part 125, Appendix B, specify the requirements for conducting these demonstrations, when they must be performed, how they are to be conducted, and the specific criteria which must be met by the applicant, operator, or manufacturer.

A. ***FAR Part 125 Demonstrations.*** For FAR Part 125 these regulations specify two types of evacuation demonstrations: a full-scale aborted takeoff and a full-scale ditching.

B. ***Partial Demonstrations.*** Partial aborted takeoff or partial ditching demonstrations are not allowed under FAR Part 125 except by deviation authority (See Related Task #73, Evaluate an Application for Deviation or Special Authorization for FAR Part 125). Procedures would be the same as for the full-scale aborted takeoff or full-scale ditching. Criteria which can be used for evaluation would be that found in FAR § 121.291(c)(1) and (e) and the air carrier inspector's handbook.

C. ***Initial Introduction of a Type and Model Aircraft.*** FAR § 125.189(a)(1) requires an emergency evacuation demonstration upon initial introduction of a type and model airplane for carrying passengers. If the operator has any airplane of the same type or model, with the same number and type of exits, with the same cabin configuration, and with the same emergency equipment previously successfully demonstrated, the operator does not have to repeat the demonstration.

D. ***Increase in Seating Capacity.*** FAR § 125.189(a)(2) requires an operator to conduct a full-scale emergency evacuation demonstration, simulating an aborted takeoff, when the passenger seating capacity is increased by more than 5% over that successfully demonstrated, or when a major change in the passenger

cabin interior configuration affects the emergency evacuation of passengers. If a certificate holder has conducted a successful emergency evacuation demonstration under FAR § 121.291(a) in the same type airplane as a previous FAR Part 121 operator, then another demonstration is not required for the FAR Part 125 certificate.

E. ***Full-Scale Demonstrations.*** A full-scale emergency evacuation demonstration simulates an aborted takeoff and requires, before initiation of the demonstration, each passenger seat installed on the airplane to be occupied by a demonstration participant.

(1) After the initiation signal, all participants and crewmembers must be evacuated using the airplane's emergency evacuation equipment and not more than 50 percent of the emergency exits and slides.

(2) The demonstration must show that the airplane and its emergency equipment, using operator-developed emergency procedures, allows for the evacuation of its full seating capacity, including crewmembers, in 90 seconds or less.

(3) Additionally, if an operator proposes to use a type and model airplane with a seating capacity greater than has ever been previously demonstrated for that particular type and model, the operator must conduct a full-scale demonstration with that type and model of airplane.

(4) FAR Part 125, Appendix B, outlines specific conditions and criteria used during full-scale emergency evacuation demonstrations. The appendix is divided into two sections.

(a) Section (a), the aborted takeoff demonstration, specifies the requirements for a full-scale evacuation demonstration including such items as environmental conditions, passenger complement, crewmember qualifications, and the number of exits to be opened.

(b) Section (b), the ditching demonstration, specifies the requirements for a simulated ditching including testing crewmember knowledge of emergency equipment, procedures, and emergency equipment reliability.

F. ***Extended Overwater Operations.*** FAR § 125.189(c) requires an applicant or a certificate holder, who intends to engage in extended overwater operations (defined in FAR § 1.1), to conduct a full-scale, simulated ditching demonstration in accordance with FAR Part 125, Appendix B. If the certificate holder had previously demonstrated a successful simulated ditching required by FAR § 121.291(d) in the same type airplane, an additional ditching demonstration is not required.

G. ***Analysis and Tests.*** FAR § 25.803(d) permits the use of a combination of analysis and tests to show that an airplane is capable of being evacuated within 90 seconds under the conditions specified in FAR § 25.803(c). Analysis and tests can be used only if the Administrator finds that this method will provide emergency evacuation demonstration data equivalent to an actual demonstration.

(1) FAA, however, intends to prohibit the use of analysis and tests to increase seating capacity more than 5 percent above the seating capacity established by a full-scale demonstration. For example, if a full-scale demonstration was satisfactorily accomplished in accordance with FAR § 25.803 and FAR § 125.189 and the maximum seating capacity established was 200 passengers, the analysis and test method would allow up to a maximum of 10 additional passengers. No further increase in capacity above the 210-passenger limit would be permitted without a full-scale demonstration.

(2) This 5 percent increase may not be approved by the certification team (for applicants) or the principal inspector (for operators) without the analysis and tests being evaluated by the appropriate Aircraft Certification Office (ACO). Any request for an increase of up to 5 percent by the analysis and test method shall be forwarded through AFS-1 to the appropriate ACO. The ACO is the organization within the FAA authorized to evaluate the analysis and tests.

11. MANUFACTURER CONDUCTED DEMONSTRATIONS. FAR § 25.803(c) requires manufacturers of transport category airplanes having more than 44 passengers seats to conduct a full-scale demonstration for the issuance of a type certificate. If the manufacturer wants the demonstration to meet both the certification requirements of FAR § 25.803(c) and the operational requirements of FAR § 125.189(a), the demonstration shall be conducted in accordance with FAR Part 125, Appendix B and the procedure described below.

A. ***Type Certification Only Demonstration.*** If the demonstration is conducted for the purpose of complying only with FAR § 25.803 (the certification rule), or by persons other than flight standards inspectors assigned by AFS-1, the airplane shall not be considered "previously demonstrated" for operations to be conducted under FAR Part 125. Therefore, a FAR Part 125 operator who proposes to put such an airplane into service must conduct a full-scale demonstration in accordance with FAR § 125.189(a) and FAR Part 125, Appendix B.

B. ***Aircraft Certification Office (ACO).*** ACO's have primary responsibility for the planning, conduct, and evaluation of manufacturer emergency evacuation demonstrations.

C. ***Regulatory Changes.*** The emergency evacuation demonstration requirements for type certification were upgraded in 1978 to make them equivalent to the operational requirements of FAR Part 121. During the comment period before FAR Part 125 was enacted, several commenters suggested that airplanes for which emergency evacuation procedures had previously been demonstrated (either under FAR § 25.803 or FAR Part 121) be allowed to operate under FAR Part 125 without another demonstration. The FAA did not agree: Emergency evacuation demonstrations conducted by aircraft manufacturers are required by FAR § 25.803 use airline crews in their demonstrations; demonstrations conducted for FAR Part 121 certification also use airline crews. In both cases, the crews have undergone FAA approved training programs which included emergency evacuation procedures. Since there are no equivalent training programs in FAR Part 125, demonstrations conducted under FAR § 25.803 or FAR Part 121 cannot be accepted for FAR Part 125. Each FAR Part 125 applicant or operator must conduct an emergency evacuation demonstration for original certification or when significant changes to an airplane are made.

13. THE ABORTED TAKEOFF DEMONSTRATION. The regulatory requirements previously outlined in paragraph 9 identified the occasions when a FAR Part 125 operator must conduct an emergency evacuation demonstration.

A. ***Airplane Configuration.*** If an operator proposes to operate airplanes configured with less than 45 passenger seats (even though they may have been type certificated with more than 44), an emergency evacuation demonstration is not required.

B. ***Requirements for Full-Scale Demonstration.*** After the principal inspector or CPM determines that a full-scale demonstration is required, the operator must develop a plan outlining the manner in which the demonstration is to be conducted. FAA inspectors responsible for the demonstration must meet with the operator as often as necessary to ensure that the operator clearly understands which documents and information are required for the plan to be accepted for evaluation. Give the operator the information in the following paragraph and the specific information in Section 2, paragraph 7B.

C. ***Representative Passenger Complement.*** In a full-scale aborted takeoff emergency evacuation demonstration, the operator must assemble a representative passenger complement in accordance with FAR Part 125, Appendix B, (a)(7) and ensure that the participants meet the appropriate criteria before conducting the demonstration. If participants do not meet the criteria, the operator must repeat the demonstration.

(1) Participants must be representative of a normal passenger complement as follows:

Passengers	Age	Percentage of Full Seating Capacity
Adult Females	12–60	30% minimum
Adult Males	12–60	50% to 60%
Adult Males and Females (proportional mix)	Over 60	5% minimum
Children (prorated by age)	3–11	5% to 10%
Life-sized dolls	.....	3 each

(2) The "life-sized dolls" referred to above must be carried by passengers to simulate infants two years old or younger.

(3) None of the passengers may be crewmembers, mechanics, or training personnel who maintain or operate the airplane.

(4) No employee of an applicant, certificate holder, or manufacturer may be seated next to an exit.

(5) It may not always be possible to have children between the ages of three and 11 participating in full-scale evacuation demonstrations because of child labor laws in some localities. In situations where local laws do not permit their use, a proportional mix of the overall passenger complement may be substituted.

(6) The operator may not practice, rehearse, or describe the demonstration for the passengers nor may any participant have taken part in this type of demonstration within the preceding six months.

D. ***Company Personnel.*** Company officials, such as Directors of Operations and Maintenance, must be available at the site of a demonstration. These individuals must have authority to direct modifications to the emergency evacuation demonstration plan at the time of the demonstration. Additionally, they must be able to respond to the FAA for specific corrective actions which may be required because of deficiencies that occur during the demonstration. Other company personnel present at the demonstration site should have a

direct role in conducting the demonstration. Inform the company that, although other company personnel may observe the demonstration, it is the company's responsibility to ensure that these persons do not pose a distraction or affect the demonstration's outcome.

E. Safety Personnel. The company shall provide safety personnel at strategic locations around the aircraft to protect participants in a full-scale evacuation demonstration. Safety personnel shall not provide any assistance to crewmembers, such as positioning slides or assisting evacuees through exits, nor may they in any manner contribute to the efficiency of the evacuation. Safety personnel are used only to ensure passengers are not accidentally injured by slipping off wings or falling from exits.

E. ***Non-Company and Non-FAA Personnel.*** Because of the complexity involved in conducting an emergency evacuation demonstration, only those individuals who have a genuine need or concern should be present during the demonstration. Interested but unessential personnel may present hazards, interfere, or in other ways affect the outcome of the demonstration. Therefore, non-company or non-FAA personnel must have specific reasons to observe the emergency evacuation demonstration. Usually, these individuals will be representatives of the aircraft manufacturer, manufacturers of other items of equipment used during the demonstration, or other organizations that have a direct interest in aviation safety.

(1) The operator is responsible for all non-FAA personnel who observe the demonstration. Those not directly involved in the demonstration should be kept at a reasonable distance away from the airplane by some restrictive means such as ropes or lines.

(2) The FAA team leader is responsible for FAA personnel who observe the demonstration. FAA observers should be limited to those who are required to evaluate the conduct of the demonstrations or need to be involved for other specific reasons, such as:

- Members of the FAA team responsible for evaluating the demonstration.
- FAA inspectors from other offices whose operators will be acquiring the same or similar type aircraft as the one being demonstrated.
- Regional or Headquarters officials or designees.
- FAA personnel from the Certification Directorate, the Flight Operations Evaluation Board, the Aircraft Evaluation Group, or any other FAA office concerned with any technical or engineering aspects of the aircraft.

F. ***Use of Flight Attendants.*** If the applicant proposes to use or the operator uses flight attendants, the flight attendant complement must have the minimum number that the operator proposes to use on the airplane during FAR Part 125 operations, but in no case shall the minimum number be less than that specified in FAR § 125.269.

G. ***Airplane Positioning.*** The airplane must be positioned in a normal ground attitude and configured for takeoff. Each passenger compartment door or curtain must be positioned as it would be for a normal takeoff.

15. THE DEMONSTRATION TEAM. The FAA team responsible for evaluating the emergency evacuation demonstration is headed by a team leader.

A. ***Initial Certifications.*** For an initial certification, the certification project manager also serves as the demonstration team leader.

B. ***Existing Operator.*** When a demonstration is conducted by an existing operator, the district office manager will normally assign one of the operator's principal inspectors to serve as the demonstration team leader, or a regional expert may be assigned as demonstration team leader.

C. ***Team Leader Responsibilities.*** The FAA team leader is responsible for planning, conducting, and evaluating the emergency evacuation demonstration. The team leader also serves as the focal point and central spokesperson for the FAA on all matters pertaining to the demonstration. Other members of the FAA team should be assigned as needed and should consist of operations, maintenance, and avionics inspectors familiar with FAR Part 125 operations and applicable regulatory requirements.

17. TABLE OF MAXIMUM DEMONSTRATED SEATING CAPACITIES. The maximum number of passenger seats for specific air transport category airplanes, some of which are used in FAR Part 125 operations are listed in Figure 74-1. This table is to be considered the primary source document for flight standards inspectors when determining maximum seating capacities. Any question or contrary information that differs from the data provided in this list shall be brought to the attention of AFS-800. The numbers have been derived from:

- Full-scale aborted takeoff emergency evacuation demonstrations.
- An approved analysis for a seating capacity up to 5 percent more than that which was previously demonstrated from full-scale demonstrations.
- As a result of previous (now superceded) regulations and exemptions.

19. THE OPERATOR'S PLAN. The operator must submit an emergency evacuation or ditching demonstration plan no later than 30 working days before the demonstration is to occur. The applicant's or operator's plan shall contain the following information:

A. ***Letter of Request.*** Section 2 of this chapter contains the specific contents of the letter of request, but team leaders must note that the operator is aware that the initiation signal must be given to both cabin and FAA personnel simultaneously. Developing the procedure for this requirement is the operator's responsibility. The demonstration team leader must thoroughly review the procedure for adequacy.

B. *Airplane Diagram*

C. *Appropriate Portions of the Manual*

D. *Passenger Information Card*

E. ***A Description of the Emergency Equipment Installed on the Aircraft.*** The type and model of each item of equipment, as applicable, must be indicated.

F. ***List of Crewmembers.*** The plan must include a list of each crewmember (both flight deck and cabin) who is or will be qualified to participate in the demonstration.

(1) The flight crew must be qualified in the aircraft to be used; however, the initial operating experience requirement need not be completed.

(2) Flight attendants designated by the FAA to participate in the demonstration shall not be provided emergency training or aircraft emergency equipment familiarization in addition to that specified in the applicant's or operator's approved training program (if any) before the demonstration.

G. ***"Dark of the Night" Description.*** FAR Part 125, Appendix B, (a)(1), specifies that the full evacuation demonstration shall be conducted during the "dark of night." The plan must contain a description of how the operator will ensure the demonstration is conducted in the "dark of the night" or in conditions which simulate the "dark of the night."

(1) The regulations do not define "dark of the night." For the purpose of emergency evacuation demonstrations, "dark of the night" shall mean a level of illumination that approximates the natural illumination that occurs immediately after official sunset under clear sky conditions. This lower level of illumination is needed to evaluate the airplane's emergency lighting system and passenger and crewmember performance in darkened conditions. Levels of illumination significantly darker can interfere with a proper evaluation of the demonstration. Therefore, this approximate level of illumination should be maintained by natural or artificial means.

(2) The most effective way of controlling the level of illumination is to conduct the demonstration in a darkened hanger.

H. ***Description of Airplane Positioning.*** A description of how the applicant or operator plans to ensure that the airplane is positioned in a location, either indoors or outdoors, which will allow the unobstructed deployment of all emergency evacuation slides or slide rafts, as applicable.

21. FAA REVIEW OF THE OPERATOR'S PLAN. When the emergency evacuation demonstration proposal is submitted, the principal inspectors or the certification team, if applicable, shall make a cursory review of the submission to ensure all the required information and documents are included. It is important that the FAA respond to the operator's plan in a timely manner. Minor omissions or deficiencies can often be resolved quickly by contacting the company's evacuation demonstration project coordinator. If the applicant's or operator's plan has a significant number of required items or documents missing or is obviously incomplete, the entire plan must be returned to the applicant or operator with a written explanation of why it is unacceptable. The applicant or operator shall be advised that the FAA will take no further action until an acceptable plan is submitted.

A. ***Evaluating the Plan.*** The POI (or team leader if applicable) must ensure that the information and items in or attached to the operator's letter of request are acceptable and consistent with the proposed type of operation. During this analysis and review the POI (or demonstration team leader) shall ensure the following:

- The applicant's or operator's emergency procedures in the operator's manual have been FAA approved.
- Evacuation procedures in the operator's manuals, including the individual crewmember assignments, are realistic, can be practically accomplished, and comply with FAR § 125.73(m).

- The passenger information card is understandable and consistent with the type and model of airplane to be demonstrated. (Guidance is provided in AC 121-24, "Passenger Safety Information Briefing and Briefing Cards.")

- The emergency equipment is acceptable for the type of operation proposed.

B. ***On-Site Evaluation.*** Certain items in the proposal may require on-site evaluation. For example, the hangar or ramp area the applicant or operator intends to use for the demonstration should be inspected for its adequacy. The inspector should determine that the applicant or operator has, or is making provisions for, participant safety during the demonstration, including the use of safety observers, stands, padding, mats, and any other appropriate safety measures.

C. ***Resolving Deficiencies.*** Deficiencies noted during this analysis and review should be resolved immediately with the company's evacuation demonstration project coordinator. If major discrepancies surface during the FAA evaluation or, if the FAA and the applicant or operator are unable to resolve significant issues, the inspector shall return the operator's plan with a letter explaining why it is being returned. The operator shall be advised that the discrepancies outlined in the letter must be corrected and a plan resubmitted before the FAA takes further action. If, after a detailed evaluation, the submission is found acceptable, the operator shall be notified, and the actual demonstration is observed.

23. PRE-DEMONSTRATION MEETING WITH OPERATOR. After reviewing and evaluating the operator's plan, the FAA team leader should meet with the operator's project coordinator. In the meeting the team leader should accomplish the following three objectives:

- Review the operator's plan and ensure that it reflects the operator's thorough familiarity with the applicable criteria that must be used during the demonstration.

- Ensure the operator is aware of responsibilities regarding participant safety, including provisions for safety observers, stands, ramps, padding, and ambulance coordination, as applicable.

- Review the method and signals for initiating the demonstration, training methods, and timing criteria.

- Determine the signal to be used to terminate the demonstration, such as a whistle blast (which may not be adequate), an air horn, or some other clearly audible means. A suitable device should be agreed upon and tested as early as possible in the planning stages.

- Resolve any issues the operator may have before conducting the demonstration.

25. FAA TEAM PLANNING. In addition to the specific items found in Section 2, paragraph 5C, the FAA team leader shall ensure the team's efforts are well planned in the following areas:

- Team member assignments, including timekeeping, position (inside or outside the airplane), inspection of the emergency equipment, the airplane, and any applicable documents. The team leader should distribute an aircraft diagram to the inspectors showing their assigned locations for the demonstration.

- The typical crewmembers selected from the list provided by the operator should normally not include those used in previous demonstrations, emergency procedures instructors, supervisors, check airmen, union safety representatives, or others who may have an above average level of competency or experience in airplane evacuation procedures.

27. SELECTING EXITS. In airplanes having an even number of exits, not more than 50 percent of the total number of exits and slides may be opened and deployed. When an airplane has an odd number of emergency exits, subtract one. Fifty percent of that number of exits shall be opened and the associated slides (if applicable) deployed. The remaining exits must be blocked.

A. ***Flight Attendants and Emergency Exits.*** Any emergency exits assigned to flight attendants as part of their evacuation duties may be selected for use during the demonstration. These floor-level exits (doors) and non-floor-level exits (windows or plugs) may be used provided they are designated as primary exits in the company's evacuation procedures. Ventral (stairs) and tailcone exits should not be used unless they are paired with another exit. If there is any doubt about which exits are paired, consult the Aircraft Certification Office (ACO) responsible for the type certificate of the model.

B. ***Blocking Exits.*** The team leader must carefully review the operator's emergency evacuation procedures. The operator may propose the method of blocking and provide the logistical support, as applicable, for the proposed method. The FAA team, however, determines which exits are to be blocked. After the FAA team determines which exits shall be used, the team must exercise extreme care to ensure the operator does not obtain that information.

C. ***Methods of Blocking Exits.*** The following are examples of acceptable methods of blocking exits during an emergency evacuation demonstration:

(1) Tape a swatch of red cloth outside covering each door window and window exit. Secure to the covering a line long enough to reach the ramp or hangar floor. At the initiation signal, designated inspectors will pull the line to remove the covering from the door windows or window exits that are to be used and will leave the covering on the ones not to be used, i.e., "blocked."

(2) Position an inspector inside the airplane at each door or window exit before initiating the demonstration. When the evacuation is initiated, the inspectors positioned in front of exits to be opened shall remove themselves from that position as quickly as possible. Inspectors positioned in front of exits not to be used will block the exit by holding up their hands and stating in a distinct, clear manner, "This exit is blocked." This is considered the most effective method for blocking overwing exits.

(3) Outside the aircraft rig red lights in front of the door or window exits. These red lights, when illuminated, can simulate a fire at those exits to be blocked. These lights must be illuminated simultaneously with the initiation signal.

D. ***Coordination with Operator.*** When a method of blocking the exits has been determined, the FAA team leader must notify the company's project coordinator of FAA concurrence with the method and ensure the company will provide the required maintenance and logistical support to prepare the airplane for the demonstration. The project coordinator must not reveal to the demonstration participants which exits are to be blocked.

29. INITIATION SIGNAL. The operator should propose a method which provides the same initiation signal for the participants inside the airplane and the FAA team members outside the airplane. The preferred method is for a company employee to interrupt the airplane's normal source of power disconnecting or turning off an external source of power or a ground power unit or by disconnecting or turning off the auxiliary power unit. Either of these actions provide a clear initiation signal in two ways:

- Inside the airplane, the flight attendants observe the extinguishing of the normal cabin lighting and the illumination of the emergency lighting system as their signal to commence the evacuation demonstration.

- Outside the airplane, FAA observers (stationed at each exit) and the team leader (who serves as the timekeeper) observe the extinguishing of the external lights (for example, taxi lights, anti-collision lights, position lights, and logo lights). This signal initiates the timing and necessary observation actions of the FAA team.

31. PRE-DEMONSTRATION INSPECTION. Before the demonstration, the FAA team must inspect the airplane and emergency equipment. The aircraft must be configured and equipped for takeoff, in accordance with the operator's manuals and procedures, to include the full passenger seating configuration and all the appropriate emergency equipment. Stands and ramps may be used to descend from the wing to the ground. They should be inspected for structural integrity and security. Other safety equipment such as mats or inverted life rafts may be placed on the ground to protect participants. No other equipment that is not part of the airplane's emergency evacuation system may be used to aid the participants in reaching the ground. If stands and ramps are used only for the exits that will be activated, they must not be positioned against the aircraft until all passengers and crewmembers have boarded the aircraft, all exits and doors have been closed, and all passengers and cockpit windows have been blocked out. This will prevent disclosure of the available emergency exits.

33. PRE-DEMONSTRATION BRIEFINGS. Before the actual demonstration three separate briefings should be conducted for the crewmembers involved in the demonstration, the participants, and the FAA team.

A. ***Crewmember Briefing.*** The company's emergency evacuation project coordinator should provide crewmembers with certain information regarding the demonstration. The FAA team leader must be in attendance at this briefing to resolve any questions and ensure the following items are briefed:

(1) The purpose of the demonstration is to evaluate the adequacy of the company's emergency procedures and the effectiveness and reliability of the airplane's emergency equipment.

(2) The initiation signal which begins the demonstration.

(3) The significance of the 90-second time limit for full-scale evacuations.

(4) The signal to be used by the FAA team leader for stopping the demonstration. Any evacuation activity in progress shall immediately cease with a "stop" signal.

(5) The importance of safety during the demonstration, including crewmember responsibilities and safety observer duties and limitations.

B. ***Participant Briefing.*** Before the demonstration, participants should be provided the following information by the company's project coordinator:

(1) The purpose of the demonstration is to evaluate how quickly the aircraft can be evacuated safely.

(2) Participants are requested to pay attention to the flight attendant's instructions.

(3) Individual safety is not to be compromised throughout the demonstration.

C. ***FAA Team Briefing.*** See Section2, paragraph 7E.

35. CONDUCTING THE DEMONSTRATION. The team leader shall ensure all pre-demonstration briefings and inspections are conducted before the actual demonstration. In addition to the step in Section 2, paragraph 5G, the following sequence of events represents an acceptable means, derived from many years of experience, for conducting the demonstration.

A. ***Passenger Boarding.*** The team leader shall advise the operator to board the passengers, as routinely as possible, and to prepare for departure. No passenger may be assigned a specific seat unless the FAA team determines the assignments are in accordance with the operator's normal boarding procedures.

B. ***Flight Attendant Preparations.*** Flight attendants prepare for a normal departure in accordance with the operator's procedures. This includes closing and securing all exits, galleys, etc., and arming the emergency evacuation system for takeoff. They also conduct a passenger briefing in accordance with FAR § 125.327 and the company's procedures. Then, they are seated at their assigned positions with their restraint systems fastened.

C. ***"Carry on Luggage.*** The carry-on luggage distributed by the FAA team consists of small suitcases, gym bags, airline flight bags, briefcase, etc., that will fit under a passenger seat. They must be filled with clothes or newspaper and should be placed in the main aisles, one bag per seat row for each aisle. Approximately one-half of the total average amount of carry-on baggage, blankets, pillows, and other similar articles should be placed in the aisles and emergency exit access ways to create minor obstructions.

D. *Flight Crew Preparations.*

(1) Before the initiation signal, the flight crew shall accomplish all the appropriate checklists and configure the airplane for a normal takeoff. If the operator's emergency evacuation procedures require the wing flaps or leading edge lift devices to be placed in the fully extended position, the airplane will be so configured before the demonstration and before the stands and ramps (if used) are positioned. Wing flaps and leading edge lift devices shall not be repositioned until after the demonstration.

(2) The flight crew must also be seated in their normal positions with their restraint systems fastened.

(3) After completing all required pre-takeoff actions, the pilot-in-command shall advise the FAA team leader (who is positioned outside, forward of the nose of the aircraft) by ground interphone that the airplane is ready for takeoff.

E. *FAA Team Responsibilities.*

(1) Each FAA observer, assigned to exits which are to be used, shall count the number of participants as they exit the airplane.

(2) After the termination signal, each observer shall note any continuing evacuation, which constitutes an unsatisfactory demonstration.

(3) FAA observers inside the airplane shall note any passenger or crewmember participants who remain in the airplane after the team leader's termination signal.

(4) Team members in the cabin shall assure that all equipment works properly, for example, floor proximity lighting emergency exits lights, etc.

(5) The FAA team should immediately confer on the observations of each team member and the overall conduct of the demonstration before advising the operator of the demonstration results. It is important that team members do not discuss the results of their observations with company personnel or participants. It is the responsibility of the FAA team leader to brief the appropriate company management personnel on the demonstration results.

37. DITCHING DEMONSTRATIONS. If the operator is planning to use its airplanes for extended overwater operations, the ditching demonstration allows FAA to evaluate the operator's ability to prepare the passengers, airplane, and ditching equipment safely for a planned water landing. The demonstration is conducted in accordance with the requirements specified in FAR § 125.189(c), FAR Part 125, Appendix B(b), and information and guidance provided in this section. The purpose of the demonstration is to evaluate the operator's ability to prepare safely the passengers, airplane, and ditching equipment for a planned water landing. During the demonstration the following four areas are evaluated.

- Emergency Training
- Ditching Procedures
- Crewmember Competency
- Equipment Reliability and Capability

39. DITCHING DEMONSTRATION REGULATORY REQUIREMENTS. FAR § 125.189(c) requires an operator, who plans to operate a land airplane in extended overwater flights, to conduct a full-scale ditching demonstration when a ditching demonstration has not been performed for the proposed type and model of airplane by the FAR Part 125 applicant or certificate holder. Partial aborted takeoff or partial ditching demonstrations are not allowed under FAR Part 125 except by deviation authority (See Related Task #73, Evaluate an Application for Deviation Authority or Special Authorization from FAR Part 125). Procedures would be the same as for the full-scale aborted takeoff or full-scale ditching. Criteria which can be used for evaluation would be that found in FAR § 121.291(c)(1) and (e) and the air carrier inspector's handbook. A full-scale demonstration is conducted in accordance with the criteria in Appendix B(b), Ditching Demonstrations, as follows:

A. ***Location.*** The demonstration must be conducted outside during daylight hours or in a lighted hanger if conducted at night.

B. ***Required Crewmembers.*** All crewmembers required by the operator's emergency ditching procedures must be present.

C. ***Participants.*** Participants are used in a ditching demonstration only when required by the operator's procedures to assist in removing and launching life rafts. Passengers shall not receive any instructions before the demonstration except for those required by the operator's manual.

41. THE DITCHING DEMONSTRATION PROCESS. Ditching demonstrations are normally conducted after the satisfactory completion of the aborted takeoff emergency evacuation demonstration.

A. ***Ditching Demonstration Combined with Aborted Takeoff Demonstration.*** If the operator plans to conduct the ditching demonstration in conjunction with the emergency evacuation aborted takeoff demonstration, the operator's aborted takeoff demonstration plan must include information applicable to the ditching demonstration such as copies of the operator's manual relating to crewmember's ditching duties and responsibilities and a description of applicable emergency equipment used for ditching (life rafts, survival gear, etc.), including the type and model.

B. ***Ditching Demonstration Without Aborted Takeoff Demonstration.*** If the operator must conduct a ditching demonstration but chooses not to conduct it with the aborted takeoff demonstration, the plan must be submitted at least 15 working days before the date of the actual demonstration.

C. ***Review of Ditching Plan.*** When the ditching demonstration plan has been submitted and accepted by the FAA, the inspector must review the proposal thoroughly to ensure the following:

(1) The proposed demonstration meets the criteria in FAR § 125.189(c) and FAR Part 125, Appendix B(b).

(2) Emergency ditching procedures in the operator's manual have been accepted and must provide for safe operating practices.

D. ***FAA Team Appointment.*** If an aborted takeoff demonstration is not conducted, the district office manager shall appoint a ditching demonstration team with a team leader in the same manner as for the aborted takeoff demonstration.

E. ***Use of Passengers to Aid Post-Ditching Evacuation.*** Some operator's manuals stipulate the use of passengers to aid the crew when conducting a post-ditching evacuation, usually to assist in the launching of life rafts. If the operator's procedures require the use of passengers, the necessary passengers must be aboard the aircraft and participate in the demonstration. The operator may not practice, rehearse, or describe the demonstration to the passengers and no participant may have taken part in this type of demonstration within the preceding six months.

F. ***Ditching Demonstration Time Limit.*** The regulations do not specify a maximum time limit to complete a ditching demonstration. During an actual ditching situation, the airplane may remain afloat for a short time; therefore, it is imperative that emergency equipment, crewmember competency, and emergency procedures provide for rapid evacuation.

(1) During the demonstration, emphasis is on crewmember efficiency and ability in the time period between the decision to ditch and the actual water landing. **Six minutes** is considered the maximum time acceptable for ditching preparation, beginning with the ditching announcement and ending with the actual evacuation of the airplane.

(2) All participating crewmembers must have correctly donned life preservers, removed life rafts from stowage (if applicable), and are ready to evacuate within six minutes of the ditching announcement. Failure to do so constitutes an unsatisfactory demonstration.

(3) The FAA team leader begins timing when the Captain issues the evacuation order. At the end of the six minute "planned ditching" period the crew must be prepared for a simulated water landing. After the

simulated water landing, all life rafts will be removed from storage. This action is not specifically timed; however, the crewmembers must demonstrate competency in removing the rafts, and the equipment must be capable of being removed for deployment in a reasonable amount of time. All life rafts and slide rafts will be launched and inflated.

(a) For the purpose of the ditching demonstration, "launching" a life raft means to remove it from storage, manipulate it out of the airplane (via stands and ramps), and position it on the ground before inflation.

(b) "Launching" a slide raft means to inflate it in a normal manner, then lower it to the ground.

(c) Crewmembers assigned to any inflated raft shall enter the raft and locate and describe the use of each item of emergency equipment within the raft.

G. ***Simulating a Ditching.*** Either the airplane, a life-size mockup, or a floating device which accurately simulates the passenger compartment must be used for the demonstration (FAR Part 125, Appendix B (b)(6)(i) and (ii)). It is FAA's desire to use the airplane for all ditching demonstrations. If the operator proposes to use a life-size mockup or a floating device to conduct the demonstration, approval must be granted by AFS-1. The operator must request use of a life-size mockup or floating device in writing to the Director of Flight Standards, AFS-1, 800 Independence Ave., S.W., Washington, D.C. 20591. The request must include specific reasons why the airplane cannot be used. AFS-1 will respond in writing to the operator granting or denying use of a life-size mockup or floating device.

H. ***Ditching Emergency Exits.*** Stands must be placed at each emergency exit and wing. FAR § 25.807(d) requires that, during type certification, ditching emergency exits must be above the calculated waterline that shall exist when the airplane is at rest in the water. This "waterline" and the designated ditching emergency exits are defined in the "manufacturer's ditching document" which is part of the final, FAR Part 25 type-certification report. The operator should obtain waterline and ditching exit information from the manufacturer. This waterline is where the tops of the stands shall be positioned.

43. EVALUATING EMERGENCY EVACUATION AND DITCHING DEMONSTRATIONS. During the observance of the aborted takeoff demonstration or the ditching demonstration, the FAA team evaluates the following:

- Crewmember compliance and effectiveness in performing assigned duties and responsibilities; for example, a flight attendant's effectiveness in assessing outside conditions, opening exits, and issuing evacuation commands. Another example is when passengers are to assist in launching life rafts during a ditching demonstration. The flight attendant's instructions to the passengers must conform with the information provided in the operator's manual.
- The flight crew's effectiveness in exercising command responsibilities and the coordination and communication between the flight crew and flight attendants.
- Any shortcomings, deficiencies, or delays caused by the emergency equipment.
- Applicable time limits (90 seconds for full-scale and six minutes for ditching) have not been exceeded.
- All designated exits and slides open properly and are "ready for use." If applicable, all passengers and crewmembers properly evacuate within the appropriate time limit.
- Life rafts removed from storage efficiently.
- All designated life rafts or slide rafts inflate properly.
- Each item of emergency equipment is found capable of performing its intended function.

A. ***Unsatisfactory Demonstrations.*** Failing to meet the specified time limit is automatic grounds for an unsatisfactory demonstration.

(1) Deficiencies in other areas such as crewmember ineffectiveness, equipment malfunctions, etc., which occur even when the time limits are met, may be grounds for an unsatisfactory demonstration depending on the severity of the deficiency.

(2) If the cause of a relatively severe deficiency was improper company training, procedures, or maintenance, the demonstration should be judged unsatisfactory. For example, if all the emergency lighting failed to illuminate because of a maintenance problem, there is sufficient grounds for determining that the demonstration is unsatisfactory.

(3) Minor deficiencies can usually be resolved with responsible company personnel without having to declare the demonstration unsatisfactory.

B. ***Demonstration Satisfactory.*** When the operator meets the specified time limits and any minor discrepancies are resolved, the demonstration is considered satisfactory.

C. ***Reporting Requirements.*** The team leader is responsible for the preparation and distribution of the

emergency evacuation or ditching demonstration report. The report shall include at least the following:

- FAA Form 8430-1, Emergency Evacuation Demonstration Report. A form is required for each demonstration attempt. For example, if two demonstrations are unsuccessful and a third is satisfactory, three forms shall be completed and submitted as part of the demonstration report package.
- The passenger information briefing card required by FAR § 125.327(c).
- A diagram of the aircraft, including emergency equipment, exits, exits used, the number of approved passenger seats, and the location of seats which were used by flight attendants.
- The name and specialty of each member of the FAA team.

Section 2 Procedures

1. PREREQUISITES AND COORDINATIONS REQUIREMENTS.

A. ***Prerequisites.*** This task requires knowledge of regulatory requirements in FAR Part 125, FAA policies, and, specifically—

- Certification process
- Task background
- Qualification as an Aviation Safety Inspector (Operations)

B. ***Coordination.*** This task requires coordination with the airworthiness unit and regional office.

3. REFERENCES, FORMS, AND JOB AIDS.

A. *References*

- FAR §§ 25.803(c) and 121.291
- FAA Order 8400.10, Air Carrier Inspector's Handbook
- FAA Order 8700.10, General Aviation Operations Inspector's Handbook
- Advisory Circular 121-24, Passenger Safety Information Briefing and Briefing Cards

B. *Forms*

- FAA Form 8430-1 (Revised), Emergency Evacuation Demonstration Report

C. *Job Aids*

- Sample letters
- Table of Maximum Demonstrated Seating Capacity (Figure 74-1)
- Operator Plan Requirements Job Aid (Figure 74-3)
- Pre-Demonstration Inspection Job Aid (Figure 74-5)

5. DETERMINE THE NEED FOR EMERGENCY EVACUATION DEMONSTRATION

A. ***Determine the Need for an Emergency Evacuation/ Ditching Demonstration.*** Determine if any of the following conditions apply. If none apply, no demonstration is required. If any apply, a demonstration is required.

- Initial introduction of a type and model airplane for carrying passengers, if more than 44 seats are installed
- When passenger seating capacity is increased by more than 5% over that successfully demonstrated
- When a major change is made in the cabin configuration that affects the emergency evacuation of passengers
- When an operator plans to use a land airplane in extended overwater operations

B. ***Demonstration not Required.*** If no demonstration is required, no further action is necessary.

C. ***Demonstration Required.*** If a demonstration is required, advise the operator or applicant in writing that an demonstration plan is required (Figure 74-2). Include a copy of the Plan Requirements Job Aid (Figure 74-3).

7. EVALUATION PROCEDURES. Upon receipt of the operator's plan, open WPMS file.

A. ***Ensure that Emergency Evacuation/Ditching Procedures are Included in the Company Manual.*** (See Related Task #75, Evaluate a Manual.)

B. ***Review Operator's Plan.*** Use Figure 74-3 to determine if the plan submitted by the operator is satisfactory or unsatisfactory.

(1) If the operator must conduct a ditching demonstration and intends to do so with the aborted takeoff demonstration, the plan must include the information in Figure 74-3 and the following:

(a) Copies of the operator's manual relating to crewmember ditching duties and responsibilities.

(b) A description of the applicable emergency equipment used for the ditching demonstration (life rafts, survival gear, etc.), including type and model.

(c) The airplane type and model or a description of the mockup or floating device (simulating a passenger compartment) which will be used.

(d) The proposed date, time, and location of the ditching demonstration.

(e) The name and telephone number of the company's ditching demonstration project coordinator.

(f) A representative diagram of the aircraft which includes the following:

- Location and designation of each exit.
- Locations of emergency ditching equipment including:
- Life rafts/slide rafts.
- Survival radios.
- Pyrotechnic signaling devices.
- Passenger/crewmember life preservers or individual flotation devices.

(g) A list of all crewmembers who will participate in the demonstration.

(2) If the plan is unsatisfactory, return the plan to the operator with a letter indicating the reasons the plan is not acceptable (Figure 74-4). Advise the operator in the letter that a revised plan must be received within 30 days of the date on the letter.

(a) If a revised plan is not received within 30 days, close WPMS item.

(b) When a revised plan is received, evaluate the plan as in paragraph 7B.

(3) When a plan is finally satisfactory, send an "information" copy to the regional office.

C. ***Assemble FAA Team Members.*** Once an evaluation team has been assembled, a team leader will be designated. The team leader will conduct as many meetings as necessary to accomplish the following:

(1) Provide specific team member assignments for the demonstration.

(2) Distribute an airplane diagram to the inspectors showing their assigned locations for the demonstration.

(3) Determine which emergency exits shall be opened and the manner in which other exits shall be blocked.

(4) Select "typical" crewmembers to be used in the demonstration from the list provided by the operator.

(5) Determine a signal to be used to initiate the demonstration.

(6) Determine the signal to be used to terminate the demonstration.

(7) Review the regulatory criteria.

(8) Assign report writing requirements to respective members of the team.

D. ***Perform Pre-Demonstration Airplane and Emergency Equipment Inspection.*** Use the Pre-Demonstration Inspection Job Aid (Figure 74-5). If there is any check in the NO column of the job aid, then the enter inspection as unsatisfactory. If the inspection is unsatisfactory, determine if the problem can be corrected immediately.

(1) If the problem can be corrected immediately, indicate satisfactory on the job aid and proceed with the pre-demonstration FAA team briefing.

(2) If the problem cannot be corrected immediately, reschedule the inspection and subsequent demonstration.

E. ***Conduct Pre-Demonstration Briefing of FAA Team Members.*** The team leader briefs FAA personnel on the following items:

- The objectives of the demonstration.
- The initiation signal.
- Assignments with regard to exits to be used or blocked.
- The signal which stops the demonstration.
- Not to discuss the results of the their observations with anyone other than the team leader.

F. ***Evaluate Operator's Pre-demonstration Crewmember Briefing.*** Ensure that the operator's demonstration project coordinator includes the following items in the crewmember briefing:

- The purpose of the demonstration.
- The initiation signal.
- The significance of the time limits for full-scale evacuations, partial evacuations, or ditching, as applicable.
- The signal to be used by the FAA team leader for stopping the demonstration and that any evacuation or ditching activity in progress shall immediately cease with a "stop" signal.
- The importance of safety during the demonstration, including crewmember responsibilities and safety observer duties and limitations.

(1) If the briefing was satisfactory, proceed with paragraph G for emergency evacuation demonstration or paragraph H for a ditching demonstration.

(2) If the briefing was not satisfactory, inform the demonstration project coordinator what was deficient and have the crewmember briefed again. When the briefing is satisfactory, proceed with paragraph G for emergency evacuation demonstration or paragraph H for a ditching demonstration.

G. *Conduct Emergency Evacuation Demonstration.*

(1) Tell the demonstration project coordinator to move the participants into position.

(2) Ensure that the flight attendants --

(a) Prepare for a normal departure in accordance with the applicant's or operator's procedures.

(b) Conduct a passenger briefing in accordance with FAR § 125.327 and the company procedures.

(c) Are seated at their assigned positions with their restraint systems fastened.

(3) When the preceding actions are completed the FAA team distributes carry-on baggage, blankets, pillows, and items of clothing in the aisles and emergency exit access ways to create minor obstructions.

(4) Ensure each external door and exit and each internal door or curtain is in position for a normal takeoff.

(5) Ensure that the flight crew:

(a) Has accomplished all the appropriate checklists.

(b) Has configured the airplane for a normal takeoff.

(c) Is seated in their normal positions with their restraint systems fastened.

(6) When advised that the crew is ready, ensure that all FAA team members and company safety observers (if used) are ready and in position.

(7) Issue a warning signal (air horn or whistle blast), which precedes the initiation signal by 30 seconds. Then, issue the initiation signal.

(8) The team leader begins timing with at least two stopwatches (a primary and a backup) when the external airplane lights are extinguished.

(9) Issue a clearly audible signal terminating the demonstration at the end of the applicable time period.

(10) Evaluate the operator's performance (paragraph I).

H. *Conduct a Ditching Demonstration.*

(1) In addition to the procedures in paragraph G(1) through (7) above, the ditching demonstration shall be conducted in the following manner:

(a) Before the ditching demonstration the FAA team shall inspect each item of emergency ditching equipment for compliance with appropriate airworthiness and other applicable directives.

(b) The FAA team leader ensures inspectors and crewmembers are at their assigned positions and then advises the Captain to commence the demonstration.

(c) he pilot-in-command initiates the demonstration by ordering (according to the operator's procedures) the crewmembers to prepare for ditching.

(2) The team leader begins timing with at least two stopwatches (a primary and a backup) when the pilot-in-command announces to prepare for ditching.

(3) Observe crewmembers preparation activities.

(4) At the end of six minutes, advise the pilot-in-command to announce that the airplane is in the water.

(a) When the ditching signal is received, each evacuee (crewmembers and participants, if applicable) must don a life preserver according to the operator's procedures and the flight attendant's briefing.

(b) Each life raft or slide raft must be launched and inflated according to the operator's procedures. All required emergency equipment must be placed in the rafts.

(c) Each evacuee must enter a life raft or slide raft. The crewmembers assigned to the raft shall locate and describe the use of each item of emergency equipment.

(5) Observe the deployment of the rafts.

(6) Observe crewmembers' ability to use the emergency equipment.

(7) Evaluate the operator's performance (paragraph I).

I. ***Evaluate Emergency Evacuation or Ditching Demonstration.*** Immediately confer with the FAA team on the observations of each team member and the overall conduct of the demonstration. If any item on any team member's Evaluation Job Aid is marked in the

NO column, then judge the entire demonstration unsatisfactory.

J. ***Advise Operator of Results.*** When the team reaches agreement on the demonstration results, advise the operator (Team Leader).

(1) If the results are unsatisfactory, issue a letter of disapproval to the operator. (Figure 74-6) The process must begin again as per paragraph 7 above.

(2) If the results are satisfactory, issue a letter of approval to the operator. (Figure 74-7) Add the airplane to the operator's operations specifications.

K. ***Complete Emergency Evacuation Demonstration Report, FAA FORM 8430-1 Revised.*** (Figure 74-8) Complete the form as follows:

BLOCK A NUMBER	DEMONSTRATION
1	The Date and Time of the Demonstration (Use 24 hour time
2	Results of the Demonstration (SAT or UNSAT).
3	Full and proper name of the operator and its four-letter designator (three letter designator element and type element from the pre-certification or certificate number, as appropriate)
4	Complete aircraft make, model, series, and N-number. Example: MD-9-80 (N1PAD).
5	Enter the names and titles of all FAA team members.
6	Check the appropriate block for the type of demonstration. Both an aborted takeoff and ditching demonstration block may be checked, if applicable.
7	Check the reasons for conducting the demonstration.
8	Enter the number of flight crew, flight attendants, and passengers aboard the airplane and the total of all on board.
9	Check the applicable FAR.
10	List each exit used and the number of persons who evacuated from each exit. Example: LF3/46.
11	Check the block for the type of slide used.
12	Enter the total elapsed time
13	Check the box which describes the airplane's location during the demonstration.
14—20	For each area, check satisfactory or unsatisfactory
21	Briefly describe how nondesignated exits were blocked (Example: Exits were blocked with red lights).
22	Briefly describe how the demonstration was initiated (Example: Deactivated aircraft's normal source of power)
23	Discrepancies/Recommendations: Remarks must reference the appropriate block number. More than one line may be used for any one item. Comments must be listed for each unsatisfactory item.
24	Enter the FAA team leader's name. The team leader must sign and date the report, and the district office manager must initial it.
25	For regional office use only

L. ***Disposition of Form.*** Complete form only through item 22. Have the District Office Manager sign the original. Forward one copy to the Regional Office. Provide the operator with a copy. Place the orignial in the district office file on the operator.

9. TASK OUTCOMES. Completion of this task results in either:

A. Completion of FAA Form 8430-1 indicating the emergency evacuation or ditching demonstration was satisfactory.

B. Completion of FAA Form 8430-1 indicating the emergency evacuation or ditching demonstration was unsatisfactory.

11. FUTURE ACTIVITIES.

A. The record of any emergency evacuation or ditching demonstration will be reviewed in future surveillance.

B. The operator may add new airplanes to the fleet which may require an emergency evacuation or ditching demonstration.

C. The operator may be subject to an enforcement investigation following an accident, incident, or possible violation of the FAR involving an emergency evacuation or ditching.

FIGURE 74-1 MAXIMUM PASSENGERS CAPACITY SEATING TABLE

MANUFACTURER	AIRCRAFT	NUMBER OF SEATS
Aerospatiale	ATR-42	46
Airbus	A300	314
Boeing	707-100	182
	707-300	189
	720-48	156
	727	Basic 119
	727-100	129 With emergency ventral stair opening system and seat pitch no less than 36 inches for the seats at the Type III and Type IV emergency exits.
	727-200	189
	737-100	118
	737-200	130
	737-300	149
	747-100	550 on main deck
	747-200	550 on main deck
	747SR	550 on main deck
	747SP	400 on main deck

BOEING 747 UPPER DECK PASSENGER SEATING

The upper deck seating of the B-747 is limited by the number of doors, types of slides, and special conditions and features. Maximum upper deck seating is limited to 45 seats.

	CONDITION		
SEATS	DOORS	SLIDES	FEATURES
8	1	Unimproved	
16	1	Improved	
24	1	25 kt	Smoke barrier, straight stairs
32	2	25 kt	Smoke barrier, straight stairs
45	2	25 kt	Smoke barrier, straight stairs

CARGO CONFIGURED AIRPLANES

	DOORS	SLIDES	FEATURES
Flight Deck:			
3 crew	1		Sufficient reels
crew plus 5 crew or as indicated in FAR § 125.331	1	Improved	
Flight and Upper Deck Capacity:			
Crew + 19 passengers and 1 attendant	2	25 kt	

FIGURE 74-1 MAXIMUM PASSENGERS CAPACITY SEATING TABLE (Cont't)

MANUFACTURER	AIRCRAFT	NUMBER OF SEATS
Boeing	757-100	219 with 4 Type I exit pairs
	757-200	224 with 3 Type I plus 2 Type III exit pairs
	757-300	239 with 3 Type I and one improved Type I exit pairs
	767-200	255 dual aisle 2 Type A and 1 Type II exit pairs
	767-300	290 dual aisle 2 Type A and 2 Type III exit pairs
British Aerospace Corporation	HS-748	52 BAC-111
	BAC-111	89 1 Type I and 1 Type III exit on each side of the airplane and a ventral stair exit shown in BAC modification No. 52-PM2508
	BAE-146-100	100
	BAE-146-200	126
Caravelle	S210	68
Convair	CV440	52
	CV580	55
	CV880	119
	CV990	149
Douglas	DC-6	82
	DC-7	91
	DC-8 Basic	189 with 4 Type I and 4 Type III exit pairs

The DC-8 Basic includes: DC-8-12, DC-8-21, DC-8-31, DC-8-32, DC-8-33, DC-8-41, DC-8-42, DC-8-43, DC-8-51, DC-8-52, DC-8-53, DC-8-55, DC-8-62, DC-8-72

	DC-8F	214 with 3 Type I and 2 Type III exits on each side of airplane

The DC-8F includes: DC-8F-54, DC-8F-55, DC-8-62F, DC-8-72F

	DC-8-60	269 with 4 Type I and 2 Type III exits on each side of airplane

The DC-8-60 series includes: DC-8-61, DC-8-61F, DC-8-63, DC-8-63F, DC-8-71, DC-8-71F, DC-8-73, DC-8-73F

	DC-9-50	139 single aisle 1 pair Type I forward of wing, 2 pair Type II overwing and tail cone

FIGURE 74-1 MAXIMUM PASSENGERS CAPACITY SEATING TABLE (Cont't)

MANUFACTURER	AIRCRAFT	NUMBER OF SEATS
	DC-9-80	172
	DC-10	345 includes DC-10, DC-10-39, DC-10-40, DC-10-30F, DC-10-10F
	DC-10	380 All DC-10's may have 380 seats if they have a 36 inch passageway leading to exits, double lane slides, and flight attendant assist bases at 1L and 1R
DeHavilland	DHC-7 DHC-8	50
Fairchild	F227	48
Fokker	F27	50
	F28-1000 -3000	65
	F28-6000	85
Lockheed	L188	117
	L1011-385-3 (L1011-500)	315 dual aisle 2 pair Type A exits forward of wing, 1 pair Type A exits aft of wing
	L1011-385-1	362 dual aisle 2 pair Type A exits forward of wing, 1 pair Type A exit aft of wing
	L1011-385-1	400 dual aisle 4 pair Type A exits
Nippon	YS-11	60
Vickers	VC 7H5 D	51
	VC 800	72

FIGURE 74-2 SAMPLE LETTER OF PLAN REQUIREMENTS

September 4, 1987

Mr. Arthur Turner
Acme Charter
Washington National Airport
Washington, D.C. 20003

Dear Mr. Turner:

This office requires that you submit an Emergency Evacuation/Ditching Demonstration Plan before the actual demonstration.

Enclosed is a Job Aid that the inspection team will most likely use to evaluate your plan.

Sincerely,

Clive Cloves
Principal Operations Inspector

Enclosure

FIGURE 74-3 OPERATOR PLAN REQUIREMENTS JOB AID

The operator's plan must include the following:	YES	NO
A letter of request stating the following:		
o FAR § 125.189 paragraph		
o Airplane type and model, specifying the full capacity (including crewmembers)		
o Number of flight attendants to be used		
o Proposed date, time, and location		
o Name and phone number of company's demonstration project coordinator		
o Statement in compliance with FAR Part 125, Appendix B, (a)(7)		
o A clear description of how the operator proposes to initiate the demonstration for timing purposes		
A diagram of the airplane to be demonstrated, which includes:		
o Location and designation of all exits by type and the designated exit pairs		
o Assigned seating location of each required crewmember during takeoff		
o Interior cabin configuration showing the location of each passenger seat, galley, aisles, lavatories, passenger compartment partitions, and bulkheads		
o Location and type of emergency equipment on the aircraft, including:		
1. Fire extinguishers		
2. Portable oxygen bottles/masks		
3. Megaphones		
4. Crash axes		

FIGURE 74-3 OPERATOR PLAN REQUIREMENTS JOB AID

Page Two	YES	NO
5. Emergency ropes/tapes		
6. First aid and medical kits		
7. Life rafts/slide rafts (Ditching Only)		
8. Individual flotation devices/life preservers (Ditching Only)		
9. Pyrotechnic signaling devices (Ditching Only)		
10. Survival type emergency locator transmitter (ELT) (Ditching Only)		
Copies of crewmember manual pages describing emergency evacuation duties and responsibilities		
Copy of the passenger information card to be used during operations		
Description of the emergency equipment installed on the airplane including at least the type and model of each item or equipment, as applicable		
List of each crewmember (both flight deck and cabin) who is or will be qualified (the flight crew must be qualified in the airplane to be used) to participate in the demonstration		
Description of how the applicant or operator will ensure the demonstration is conducted in the "dark of the night" or in conditions which simulate "dark of night"		
Description of how the applicant or operator plans to ensure that the airplane is positioned in a location, either indooors or outdoors, which will allow the unobstructed deployment of all emergency evacuation slides or slide rafts, as applicable		
REMARKS:		

FIGURE 74-4 SAMPLE LETTER REJECTING PLAN

July 24, 1987

Mr. John R. Ryan
Fly-By-Night Travel Club
Miami International Airport
Miami, FL 11111

Dear Mr. Ryan:

We regret that we will be unable to accept your plan for an emergency evacuation/ditching demonstration because of the following plan deficiencies:

- Plan did not include name and telephone number of the evacuation demonstration project coordinator
- No emergency evacuation diagram of the airplane was included

Your plan is enclosed for revision. When an acceptable plan is received by this office, arrangements will be made for an emergency evacuation/ditching demonstration.

Sincerely,

Raoul O'Malley
Principle Operations Inspector

FIGURE 74-5 PRE-DEMONSTRATION INSPECTION JOB AID

These items must meet regulatory requirements:	YES	NO	N/A
Oxygen equipment (FAR § 91.32)			
First aid equipment (FAR § 125.207(a)(1))			
Crash axe (FAR § 125.207(a)(2))			
Megaphones (FAR § 125.207(b))			
Interior emergency exit markings (FAR Part 125, Appendix A)			
Lighting for interior emergency exit markings (FAR Part 125, Appendix A)			
Emergency light operation (FAR Part 125, Appendix A)			
Emergency exit operating handles (FAR Part 125, Appendix A)			
Emergency exit access (FAR Part 125, Appendix A)			
Exterior exit markings (FAR Part 125, Appendix A)			
Exterior emergency lighting and escape route (FAR Part 125, Appendix A)			
Floor level exits (FAR Part 125, Appendix A)			
Additional emergency exits (FAR Part 125, App'x A)			
Seats, safety belts, and shoulder harnesses (FAR § 125.211)			
Airplane fire detection and protection system (FAR Part 125, Subpart E)			
Cockpit escape system (FAR § 25.805)			
Stands and ramps (FAR Part 125, Appendix B(a)(3))			
Life rafts (FAR § 125.209(a)(2)) (Ditching Only)			
Flotation devices or life preservers (FAR § 125.209(a)(1)) (Ditching Only)			

FIGURE 74-5 PRE-DEMONSTRATION INSPECTION JOB AID

Page Two	YES	NO	N/A
Emergency Equipment required for extended overwater operation FAR § 125.209 (Ditching Only)			

FIGURE 74-6 LETTER NOTIFYING OPERATOR THAT DEMONSTRATION WAS UNSATISFACTORY

FAA letterhead

Operator's name and address

Dear ____:

This is to confirm the unsatisfactory finding of the Federal Aviation Administration (FAA) team that evaluated your emergency evacuation [and/or ditching] procedures in [airplane make and model] for the demonstration conducted on [date] at [location].

- Cite all discrepancies
- Suggest corrective actions and set a time limit (30 days from the date of the letter) for a new demonstration

If you have any questions concerning this matter or should you wish to schedule another evaluation, please contact this office at [telephone number].

Signed by: CPM, if an initial certification
POI, if for an existing operator

FIGURE 74-7 LETTER NOTIFYING OPERATOR THAT DEMONSTRATION WAS SATISFACTORY

FAA letterhead

Operator's name and address

Dear ____:

This is to confirm the satisfactory finding of the Federal Aviation Administration (FAA) team that evaluated your emergency evacuation [and/or ditching] procedures in [airplane make and model] for the demonstration conducted on [date] at [location].

- Compliment the operator on a good job
- Highlight any areas that were satisfactory but marginal

Enclosed is a copy of the emergency evacuation demonstration report for your records.

Signed by:CPM, if an initial certification
POI, if an existing operator

FIGURE 74-8 FAA FORM 8430-1, EMERGENCY EVACUATION DEMONSTRATION REPORT

RIS: FS 8400-1

EMERGENCY EVACUATION DEMONSTRATION REPORT

Instructions: Attach briefing card required by FAR 121.571(b) or 125.327(c) and diagram of aircraft showing location of flight attendant seats, emergency equipment, and exits used for the demonstration.

1. Date and Time of Demonstration:

2. Results:
   - A. ☐ Satisfactory
   - B. ☐ Unsatisfactory

3. Name of Operator And Designator:

4. Make, Model, Series, and N Number:

5. Name and Title of FAA team members:

6. Type of Demonstration
   - A. ☐ Aborted Takeoff Full-Scale
   - B. ☐ Aborted Takeoff Partial
   - C. ☐ Ditching Full-Scale
   - D. ☐ Ditching Partial

7. Reason for Demonstration
   - A. ☐ Initial Type Certification
   - B. ☐ Initial Introduction Into Service (this operator)
   - C. ☐ Increased Seating Capacity
   - D. ☐ Change in Cabin Configuration
   - E. ☐ Change in F/A Number, Duties, Location, or Procedures
   - F. ☐ Change in Exit Number Location, or Opening Mechanism
   - G. ☐ Other (Specify) _____

8. Number of Persons On Board
   - A. Flightcrew _____
   - B. Flight Attendants _____
   - C. Passengers _____
   - D. Total _____

9. Applicable Regulations
   - A. ☐ 121.291(a)
   - B. ☐ 121.291(b)
   - C. ☐ 121.291(c)
   - D. ☐ 121.291(e)
   - E. ☐ 25.803(c)
   - F. ☐ 125.189(a)
   - G. ☐ 125.189(c)

10. Exits Used*

A	B	C
D	E	F

11. Type Slides Used
   - A. ☐ Inflatable
   - B. ☐ Noninflatable
   - C. ☐ Slide Raft

12. Time Record
   - A. ☐ Aborted Takeoff Full-Scale _____ Sec
   - B. ☐ Aborted Takeoff Partial _____ Sec
   - C. ☐ Ditching Full-Scale _____ Min
   - D. ☐ Ditching Partial _____ Min

Comment Record

13. Airplane Location
   - A. ☐ Hanger
   - B. ☐ Ramp

14. Company Safety Precautions
   - A. ☐ Satisfactory
   - B. ☐ Unsatisfactory

15. Emergency Equipment Inspections
   - A. ☐ Satisfactory
   - B. ☐ Unsatisfactory

16. Crew Performance
   - A. ☐ Satisfactory
   - B. ☐ Unsatisfactory

17. Crew Knowledge
   - A. ☐ Satisfactory
   - B. ☐ Unsatisfactory

18. Equipment Reliability
   - A. ☐ Satisfactory
   - B. ☐ Unsatisfactory

19. Company Procedures
   - A. ☐ Satisfactory
   - B. ☐ Unsatisfactory

20. Other (Record in Block 23)
   - A. ☐ Satisfactory
   - B. ☐ Unsatisfactory

*Exit Code: L—Left; R—Right; W—Window; F—Floor Level; VS—Ventral Stairs; T—Tail; C—Cockpit; U—Upper Deck; B—Below Main Cabin Floor. Number the Exits from Cockpit to Tail.

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FIGURE 74-8 REVERSE OF FAA FORM 8430-1, EMERGENCY EVACUATION DEMONSTRATION REPORT

EMERGENCY EVACUATION DEMONSTRATION REPORT

21. How Nondesignated Exits Were Blocked:

22. Initiation Signal:

23. Discrepancies/Recommendations: (Make Reference to Appropriate Blocks)

Block	Remarks

24. District Office Action: | District Office Manager's Initials:

Team Leader's name (type) | Signature | Date

25. Regional Office Review:

Specialist's name (type) | Signature | Date

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